Iguana Logging Best Practices

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Overview

- 1. Iguana logs
 - a. What information is in the logs
 - b. Log configuration and maintenance

2. Reviewing key Iguana logging workflows

- a. Notifications using the logs
- b. Troubleshooting and Reporting
- 3. Interacting with the Iguana Log API
 - a. What is the Log API
 - b. When and how to use it
- 4. Logging Exercises
 - a. Troubleshooting Messages
 - b. Using the Log API

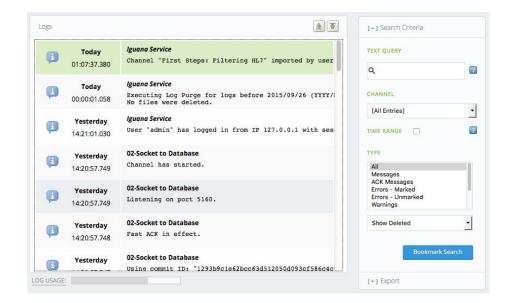




What are the Iguana Logs?

Each Iguana uses a single message queue to log all system and data messages.

- Messages and Acknowledgments
- Server Information
- User Activity
- Channel Status







Logs Types

| | 2021/03/16 12:10:43.054 | Facility 1 - HL7 Inbound MSH ^~\& MedPoke E\T\R Main HIS : EVN 20080313024117 201903060 PID 7263777 Kane^Cameron 195 | ACK | 2021/03/16 12:10:23.993 | Facility 1 - HL7 Inbound MSH ^~\& Main HIS St. Micheal MSA AA 6ED85060960361A2701BA1 |
|---|-----------------------------------|---|-----|-----------------------------------|--|
| × | 2020/11/09 14:08:00.070 | Facility 2 - Outbound Error encountered while filtering Translator error occurred in modu The header segment 'MSH' was not | | 2021/02/04 13:57:10.547 | HL7 ADT Simulator Lost connection to localhost Will attempt to reconnect in |
| | 2021/03/16 12:10:45.239 | Facility 3 - Outbound ACK message verified. Message | Ģ | 2021/03/25 16:07:08.005 | <i>lguana Service</i> User "admin" has logged in |
| | 2021/01/27 17:55:33.386 | B2. LabVantage Order In Message filter initialized suc | 4 | Today 10:50:01.383 | <pre>Iguana Service {</pre> |





How are Logs Stored?

Queue and Log information are stored as daily log files in a designated log directory.

| <u>Settings</u> > Log | Settings | | | |
|-----------------------|--------------------|--|--|--|
| | Log Settings | | | |
| | Log Directory | /Users/awiebe/Library/iNTERFACEWARE-Iguana/working_dir/logs | | |
| | Index Directory | /Users/awiebe/Library/iNTERFACEWARE-Iguana/working_dir/logs/index | | |
| | Maximum Log Age | | | |
| | Log Purge Time | 12:00 am Iguana will purge logs every day at this scheduled time. | | |
| | Synchronous Writes | No | | |
| | Audit Logging | Enabled | | |
| | | Edit | | |

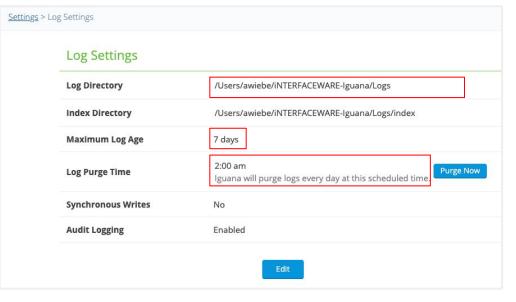
With Iguana Professional and Enterprise, logs are natively encrypted at rest and ePHI Audit Logs are produced.





Log Maintenance Best Practices

Modify log configurations to meet your technical and business needs...



- Separate logs in individual file directory or on another partition.
- 2. Don't keep more logs than you need.
- 3. Purge logs at quietest time of the day.
- 4. Always monitor storage capacity.



Key Logging Workflows

Troubleshooting

Reprocessing Messages

Common reasons you may need to resubmit messages:

- Received bad data
- External system failure
- Infrastructure changes (ie. system migration)





Troubleshooting

Reprocessing Messages

| 5 | | | |
|---|--|---|------|
| | database (5408) / 11:01:32.548 | | |
| VN 2011 ID 452 K1 1 Smi V1 E 8 BX WT1 BX HT1 | 0213144532 2 5285^^^ADT1 Sm th^Gary Second | ith*Tracy 10-Feb-1998 F Wartian 86 Yonge St.^^ST. LOUIS*NO^51460 1185438871 8530031194 10-346-6 284-517-569 Cousin "Mary"*"DR 1318095^^ADT1 20110213144956 nds | |
| 1 | Yesterday 11:01:32.549 | <pre>Hp_to_database Message successfully processed by translator.</pre> | |
| Ø | Yesterday 11:01:32.548 | <pre>IIp_to_database Sending ACK back to client.</pre> | |
| X | Yesterday 11:01:32.548 | p_to_database MBH ^~\6 Main HIS StMicheals iNTERFACEWARE Lab ACK A9B38584D9903051F0D2B52CC0148965775D2D23FE4C51BE060B33B6ED27T MSA AA 9B38584D9903051F0D2B52CC0148965775D2D23FE4C51BE060B33B6ED27DA820 | DA82 |
| ţ i | Yesterday 11:01:32.548 | lip to_database Message committed to queue. | |
| | Yesterday | Ip_to_database MSH ^~\6 iNTERFACEWARE Lab Main HIS St. Micheals 20110213144932 ADT^A03 9B38584D9903051F0D2B52CC0148965775D2D23FB44 | |

2 Reprocess Messages

- Resubmit Single Message
- Resubmit Multiple Messages
- Skip Messages



Reprocessing Logs

Resubmit a Single Message

When viewing a message in the logs you can...

Modify and resubmit message •

Use this message in the Translator editor

MSH | ^~\& | INTERFACEWARE | E\T\R | Main HIS | S Resubmit or forward this message.

Logs

OBX

OBX

Ilp to channel (616B)

NK1 1 Smith Fred Parent NK1 2 Adams Mary Grandchild

NK1 3 Garland Fred Grandchild NK1 4 Fitzgerald Tracy Parent

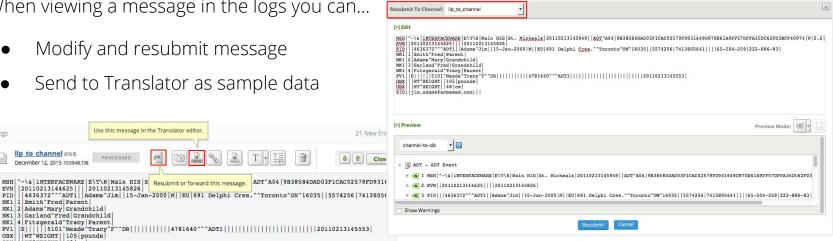
ZID jim.adams@acmemed.com

WT^WEIGHT | 105 pounds HT^HEIGHT 48 cm

December 12, 2015 10:59:48.198

EVN 20110213144625 20110213145826

Send to Translator as sample data





Reprocessing Logs

Resubmit Multiple Messages

Reposition a channel queue to **restart** processing from a specific point in time.

| ogs | 2 T | [–] Search Criteria | |
|------------------------------------|---|---|--|
| Today 10:23:42.314 PROCESSED | LogAPI - HL7 Processor MSBI ^-\6 MedDvke Lab Main HIS St. Micheals 20101005062434 ADT^A04 EEE37E603A012832D43663FA6(EVN 20141003082007 20080102024952 EVN 2014175698 WHITF 'Fred 19920809 M Unknown 2 Yonge St.^^LA^CA^96977 55-34-690 939-(NK1 Fitzgerald 'Tracy Sibing NK1 2 Muir' Sabring Grandchild | TEXT QUERY Q CHANNEL | Reposition Channel : |
| Today 10:23:32.241 PROCESSED | LogAPI-HL7 Processor MsH [~\6]AcmeMed [EVT\R Main HIS]SL. Micheals 20030701090306 ADT^A08 E4E37E60F0001B44DC7B5706 EVN 2003021111255 20200216042142 PID 2138936 Meade^Tracy 19031002 F Martian 806 Delphi Cres.^^LA^CA^22728 90-865-2: NK1 Fitzgeral'Sabring Parent PV1 ^^carland'Jim [*] F 2214974 20200213095501 | LogAPI - HL7 Processor Last Processed Message TIME RANGE | Reposition Channel "01-File to Socket" to start with this message? All messages before this point will be marked as |
| Today 10:23:22.208 PROCESSED | LogAPI-HL7 Processor MSH[~~\6[CowSing]EVTNR Main HIS St. Micheals 20180912061925 ADT^A07 DAE37E60CF00D67F114730Fi EVN [20030514113920] 20010928015527 PID 6190866 Smith^Tracy 19680824 F AI 536 Yonge St.^^LA^CA^60561 79-967-978 319-2! NKI 1 Smith*Sabrina Grandchild NKI 2 Adams*Tracy Parent | TYPE All (except Audit) Messages ACK Messages Errors - Marked | Cancel After this message Start here |
| Today 10:23:12.146 PROCESSED | LogAPI-HL7 Processor MSH[~~\6]AcmeMed[EVTR Main HIS]St. Micheals 20080216050402 ADT^A04 D0E37E60900070C6C7AC58BJ EVN 20010204095902 20080324090706 PID 7200518 Muir"Tracy 19590527 F EU 126 Miller Lane^^Toronto^ON^11949 70-152-296 NK1 2 Adams"Sabrina[Sibling | Errors - Unmarked Warnings Show Deleted V | Cancer Arter uns message Starchere |
| Today 10:23:02.107 | LogAPI-HL7 Processor MSH ^-\6 AcmeMed Lab Main HIS St. Micheals 20180619012604 ADT^A07 C6E37E606B004A01BB7D45F04: EVN 20160410015640 [201010220055917] PID 8159132 Adams*red 3270415 M Unknown 783 Miller Lane^^LA^CA^58427 20-444-74 : | Bookmark Search | |



Reprocessing Logs

Skip Messages

Reposition a channel queue to **omit** processing from a specific point in time.

| ogs | * T | [-] Search Criteria | |
|-----------------------|---|---|---|
| Today 15:00:54.619 | 01-File to Socket MSH [~~\& AcmeMed Lab Main HIS St. Micheals 20050115115518 ADT^A01 93CC8B5 | TEXT QUERY | Reposition Channel |
| PENDING | EVN 20080803110421 20070402071634 PID 3490353 <mark>Garland Fred</mark> 19330913 M Unknown 582 Miller Lane^^Chicago [*] 1 NKl Fitzgerald Mary Second Cousin | 🔍 Garland Fred 🛛 🗷 | Reposition Channel "01-File to Socket" to start with this |
| | NK1 2 Muir^Sabrina Parent | CHANNEL | message? |
| Today 15:00:44.554 | 01-File to Socket MSH[~~\& CowZing Lab Main HIS St. Micheals 20130227041222 ADT^A07 82CC8B56 EVN 202060404031841 20051123025127 | 01-File to Socket | All messages before this point will be marked as |
| PENDING | <pre>PID 9043001 WHITE^Sabrina 19180326 F Mixed 207 Delphi Cres.^LA^CA^996 NK1 1 Garland^Tracy Second Cousin NK1 2 Smith^Fred Parent </pre> | Last Processed Message | processed. |
| Today | 01-File to Socket | ТҮРЕ | Cancel After this message Start here |
| 15:00:24.414 | MSH ^~\& MedPoke E\T\R Main HIS St. Micheals 20040111080738 ADT^A03 75CC8E EVN 2011115050640 20110921063922 | All | |
| PENDING | PID 6720079 Meade [*] Ered 19530213 M Martian 481 Main Rd. [^] Chicago [*] IL ⁶ 614 NKl Mui [*] JuipFarent NKl 2 Smith [*] Sabrina Sibling | Messages ACK Messages Errors - Marked | |





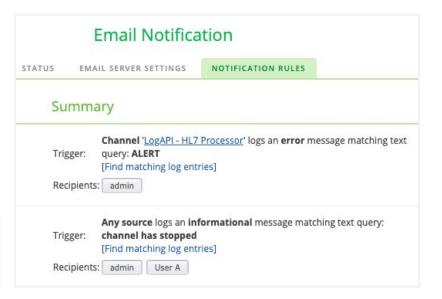


Notifications using the Logs

Use logging commands to customize log messages and trigger alerts

- iguana.logInfo()
- iguana.logWarning()
- iguana.logError()
- iguana.logDebug()

```
function Alert()
    if MSH[6][1]:nodeValue() == '' then
        iguana.logError('ALERT: Missing Receiving Facility')
    end
end
```







Searching the Logs

| Ð | Today 01:07:37,380 | Iguana Service Channel "First Steps: Filtering HL7" imported by user | TEXT QUERY |
|---|----------------------------------|--|--|
| Ð | Today 00:00:01.058 | Iguana Service Executing Log Purge for logs before 2015/09/26 (YYYY/I No files were deleted. | Q CHANNEL |
| Ð | Yesterday 14:21:01.030 | No files were deleted. <i>Iguana Service</i> User "admin" has logged in from IP 127.0.0.1 with ses | [All Entries] |
| Ð | Yesterday 14:20:57.749 | 02-Socket to Database Channel has started. | TYPE All Messages |
| Ð | Yesterday 14:20:57.749 | 02-Socket to Database Listening on port 5160. | ACK Messages Errors - Marked Errors - Unmarked Warnings |
| i | Yesterday 14:20:57.748 | 02-Socket to Database Fast ACK in effect. | Show Deleted |
| | Yesterday | 02-Socket to Database Using commit ID: "1293b9cle62bcc63d512050d093cf586c4c | Bookmark Search |

Search keywords, phrases, regex

Filter results by:

- Source
- Date/time range
- Log type

Bookmark common searches Export search results



Using the Log API



What is the Log API?

RESTful API to query and aggregate logs from an Iguana server

GET/api_query returns a table of matching log entries as XML

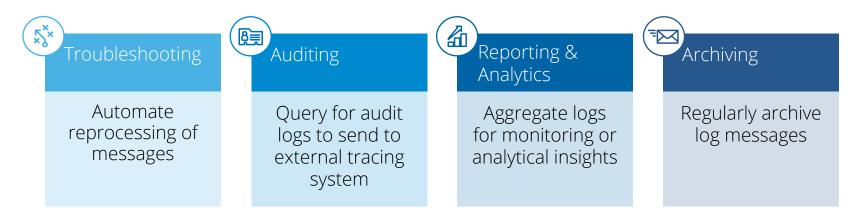
Results can be used in Iguana or exported to a file/system/database

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|---|---|---|--|--|--|--|
| × | 🕑 Document | | | | | |
| | 🔻 🐼 <expor< td=""><td>t></td></expor<> | t> | | | | |
| | = suc | cess="true" | | | | |
| | * 🐼 <me:< td=""><td>isage></td></me:<> | isage> | | | | |
| | <pre>source_name="Facility 1 - HL7 Inbound"</pre> | | | | | |
| | | ime_stamp="2021-03-16 12:10:43.054" | | | | |
| | r | eference_id="" | | | | |
| | | ype="Message" | | | | |
| | <pre>data="MSH ^~\& MedPoke E\T\R Main HIS St. Micheals 20100519073713 </pre> | | | | | |
| | | essage_id="20210316-1347094" | | | | |
| | <u> </u> | eleted="N" | | | | |
| | n | arked="N" | | | | |
| | | esubmitted="N" | | | | |
| | == i | s_resubmission="N" | | | | |
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| | ► 🚺 <me:< td=""><td>ssage source_name="Facility 1 - HL7 Inbound" time_stamp="2021-03-16 12:10:23.99</td></me:<> | ssage source_name="Facility 1 - HL7 Inbound" time_stamp="2021-03-16 12:10:23.99 | | | | |
| | ► 😒 <me:< td=""><td>ssage source_name="Facility 1 - HL7 Inbound" time_stamp="2021-03-16 12:10:13.95</td></me:<> | ssage source_name="Facility 1 - HL7 Inbound" time_stamp="2021-03-16 12:10:13.95 | | | | |





When to use the Log API



Key Considerations:

- Security Exposing ePHI outside of Iguana
- Performance High volume queries increase load on Iguana





How to use the Log API



GET /api_query endpoint

Input parameters for query

Parse returned table



Iguana Logging Exercises

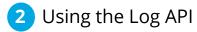


Today's Logging Workflows



Troubleshooting Messages

Resubmitting messages and repositioning the queue



Query the Log API to retrieve log messages hourly for archiving









- <u>https://help.interfaceware.com/v6/log-features</u>
- <u>https://help.interfaceware.com/v6/audit-logs</u>
- <u>https://help.interfaceware.com/v6/log-encryption-works</u>
- <u>https://help.interfaceware.com/v6/log-configuration-and-performance</u>
- <u>https://help.interfaceware.com/v6/reprocessing-and-resubmitting-log-messages#single</u>
- <u>https://help.interfaceware.com/v6/reprocessing-and-resubmitting-log-messages#multiple</u>
- <u>https://help.interfaceware.com/v6/reprocessing-and-resubmitting-log-messages#skip</u>
- <u>https://help.interfaceware.com/v6/monitoring#notification</u>
- <u>https://help.interfaceware.com/v6/using-the-logs#search</u>
- <u>https://help.interfaceware.com/v6/accessing-the-logs-from-other-applications#export</u>
- <u>https://help.interfaceware.com/v6/http-api-reference#log</u>
- <u>https://help.interfaceware.com/v6/accessing-the-logs-from-other-applications</u>

